

Attorney Docket No. 06618-089003  
Serial No.: 09/512,145  
Amendment Dated February 6, 2004  
Reply to Office Action dated August 8, 2003

Amendment to the Claims:

This listing of claims replaces all prior versions, and listings, of claims in the application:

Kindly cancel claims 12, 15 and 21-32 without prejudice.

1. (Cancelled)

2. (Previously presented) An adaptive programmable light imaging device, comprising:

an array of active pixel sensor pixels, each pixel producing a signal based only on the received radiation within the pixel;

a plurality of programmable summation kernels, each summation kernel programmable to selectively sum together a number of said pixels from said active pixel sensor; and

a resolution control circuit, producing an output signal which controls a size of said summation kernels between a minimum value kernel size and a maximum value kernel size by monitoring a received signal level from individual pixels, statistically determining numbers of pixels which are in specified states, and automatically changing the size of the summation kernels based on statistically determining.

3. (Original) A device as in claim 2, wherein said resolution control circuit is based on illumination condition,

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and decreases the kernel size for better illumination condition  
and increases the kernel size for poorer illumination condition.

4. (Original) A device as in claim 3, wherein said  
minimum kernel size is one pixel.

5. (Original) A device as in claim 3, wherein said  
illumination condition is judged by a magnitude of said signal  
from said active pixel sensors.

6. (Original) A device as in claim 3, wherein said  
resolution control circuit includes a digital circuit.

7. (Original) A device as in claim 6, wherein said  
digital circuit includes a plurality of comparators, each having  
a different threshold, and wherein said signal from said active  
pixel sensors is input in parallel to each of said comparators.

8. (Original) A device as in claim 7, wherein outputs of  
said comparators are connected to output respective signals.

9. (Previously presented) An adaptive programmable light  
imaging device, comprising:

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an array of active pixel sensor pixels, each pixel producing a signal based only on the received radiation within the pixel;

a plurality of programmable summation kernels, each summation kernel programmable to selectively sum together a number of said pixels from said active pixel sensor; and

a resolution control circuit, producing an output signal which controls a size of said summation kernels between a minimum value kernel size and a maximum value kernel size by monitoring a received signal level from individual pixels, statistically determining numbers of pixels which are in specified states, and automatically changing the size of the summation kernels based on statistically determining further comprising a counter which counts a number of pixels which are in specified illumination states and sets said summation kernel size based on said count.

10. (Original) A device as in claim 9, wherein said counter detects whether at least half of the image has sufficiently bright pixels, and if so, configures the kernel size to be one.

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11. (Original) A device as in claim 9, wherein said counter determines if at least half of the number of pixels are dimmer than a specified value, and if so sets the kernel size to a preset maximum value.

12. (Cancelled)

13. (Original) A device as in claim 3, wherein said active pixel sensor includes a photoreceptor and a buffer transistor and a selection transistor.

14. (Original) A device as in claim 13, further comprising self-calibrating the circuit prior to detecting an illumination condition.

15. (Cancelled)

16. (Previously presented) An adaptive programmable light imaging device, comprising:

an array of active pixel sensor pixels, each pixel having an in-pixel buffer transistor, and in-pixel selection transistor, and a photoreceptor producing a signal based only on the received radiation within the pixel;

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a double sampling circuit, operating to eliminate at least one amplifier offset from said signal;

a plurality of programmable summation kernels, each summation kernel programmable to selectively sum together a number of said pixels from said active pixel sensor; and

a resolution control circuit, including an illumination condition detecting part connected to said active pixel sensor pixels and determining the illumination condition therefrom, and producing an output signal which automatically controls a size of said summation kernels between a minimum value kernel size for a maximum illumination condition, and a maximum value kernel size based on a minimum illumination condition, wherein said illumination condition detecting part comprises a counter which counts numbers of pixels which are in specified illumination states and sets said summation kernel size based on said count.

17. (Cancelled)

18. (Previously presented) A device as in claim 16, wherein said counter detects whether at least half of the image has sufficiently bright pixels, and if so, configures the kernel size to be on.

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19. (Previously presented) A device as in claim 16, wherein said counter determines if at least half of the number of pixels are dimmer than a specified value, and if so sets the kernel size to a preset maximum value.

20. (Original) A device as in claim 16, further comprising a frame memory, for storing an entire frame as a stored frame, and

wherein said resolution control circuit is based on illumination condition in said stored frame, and decreases the kernel size in a subsequent frame for better illumination condition and increases the kernel size in said subsequent frame for poorer illumination condition.

21-32. (Cancelled)